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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/777,435	02/06/2001	Bhanwar Singh	F0650	3229

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EXAMINER
DESTA, ELIAS

ART UNIT	PAPER NUMBER
2857	

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.		Applicant(s)
Office Action Summary	09/777,435		SINGH ET AL.
	Examiner		Art Unit
	Elias Desta		2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some *   c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date <u>2</u>.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Claim rejection – 35 U.S.C. 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as
> set forth in section 102 of this title, if the differences between the subject matter sought to be
> patented and the prior art are such that the subject matter as a whole would have been obvious at
> the time the invention was made to a person having ordinary skill in the art to which said subject
> matter pertains. Patentability shall not be negatived by the manner in which the invention was
> made.

2.   _Claims 1-41_ are rejected under 35 U.S.C. 103(a) as being unpatentable over

Erhardt et al. (U.S. Patent 6,513,151) in view of _Utsunomiya et al._ (U.S. Patent

6,142,660).

In reference to claims 1, 10, 36 and 40: _Erhardt et al._ teaches a system for remotely

analyzing diagnostic information (see _Erhardt et al._, Fig. 6). The system includes

analysis system for analyzing diagnostic information from spin tracks (see _Erhardt et_

_al._, column 5, line 65 to column 6, line 3) where the analysis system consists of

analysis components (see _Erhardt et al._, Fig. 5).

However, _Erhardt et al._ does not teach maintenance system for scheduling

maintenance for spin-tracks.

Utsunomiya et al. teaches maintenance systems for scheduling maintenance for

apparatus (such as spin tracks) used in semiconductor manufacturing based on

diagnostic information from apparatus (spin tracks) where the maintenance system includes maintenance components (see *Utsunomiya et al.*, Abstract and Figs. 9 and 10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the remote analyzing system as taught by *Erhardt et al.* and incorporate a computerized maintenance system for scheduling maintenance for apparatus (spin track) in order to correct measuring errors caused by apparatus or spin tracks (see *Utsunomiya et al.*, Abstract); because changes over time of the apparatus (spin track) and changes caused by a particular wafer treatment process are related to the over all errors (see *Utsunomiya et al.*, column 1, lines 49-52).

With regard to claims 2 and 11: as noted above in claim 1, *Erhardt et al.* further teaches that the system includes control information system for generating feedback information to adapt the processing steps performed by spin tracks, where the feed back control information is based on data generated by the analysis system; the control information system includes control information components (see *Erhardt et al.*, Fig. 2).

With regard to claims 3 and 4: as noted above in claim 2, *Erhardt et al.* in view of *Utsunomiya et al.* further teaches that the spin tracks, the analysis, the maintenance and the feedback systems are connected by data communication system (see *Erhardt et al.*, Fig. 6).

With regard to claims 5 and 6: as noted above in claims 3 and 4, *Erhardt et al.* further teaches that the data communication system is the Internet [see *Erhardt et al.*, Fig. 6, Wide Area Network (WAN) is part of the Internet].

With regard to claims 7, 8 and 9: as noted above in claim 1, *Erhardt et al.* in view *Utsunomiya et al.* further teaches that the analysis, maintenance and feedback information system determines the existence of an unacceptable spin track diagnostic condition in spin tracks based on diagnostic information values differing from an acceptable value because *Utsunomiya et al.* or *Erhardt et al.* reference talks about having an error in measuring the wafer parameter or the calibration of the apparatus where both references would have acceptable values in order to correct the errors due to wafer defect or misalignment of an apparatus (see *Erhardt et al.*, Fig. 8).

In reference to claims 12, 13, 14 and 15: *Erhardt et al.* in combination with *Utsunomiya et al.* teaches a data packet transmitted from a first computer process to a second computer includes all test values and error correction attributed to the wafer process (see *Erhardt et al.*, Fig. 6, Remote computer is connected to the main frame through WAN or LAN), further as noted above, for the maintenance schedule, *Utsunomiya et al.* provides a system with maintenance commands that would enable one to gather:

> ➤ Data related to diagnostic information collected from apparatus (spin tracks);

> ➤ Data related to analysis performed on diagnostic information collected

> from the apparatus (spin tracks); and

> ➤ Data related to feedback control information for controlling fabrication

> steps in the apparatus (spin tracks).

Because, it would have been obvious to one having ordinary skill the art at the

time the invention was made to modify the system for remote analyzing of wafer data

as taught in *Erhardt et al.* and incorporate maintenance schedule for apparatuses used

in the processing of the wafer, further the data gathering schemes noted above are

essentially related to the maintenance schedule discussed in *Utsunomiya et al.*

With regard to claim 16: as noted above in claim 15, *Erhardt et al.* further teaches

that the computer readable medium includes a third data field (feedback data)

containing third data derived from the first data field (input to the system) where in

the third data relates to feedback control information related to the analysis of the

first data (see *Erhardt et al.*, Fig. 2).

With regard to claims 17, 18, 19 and 20: as noted above in claim 1, *Erhardt et al.*

further teaches that the diagnostic information is stored in a database in HTML and

XML document where the information is queried in a query language (see *Erhardt et*

al., Fig. 6, where WAN is used to communicate with the main frame hence it would

have been obvious to one having ordinary skill in the art at the time the invention

was made to have HTML or XML document where the information is queried in a

query language such as Pearl because such technology has existed since the

conception of WAN or LAN.

With regard to claims 21-35: as noted in claims 1 and 2, *Erhardt et al.* further

teaches that the system includes components of the analysis, maintenance and

feedback system are located locally and remotely to spin tracks (see *Erhardt et al.*, Fig.

6, which includes both remote and main frame computer which have identical

configuration that enables local and remote monitoring capability).

With regard to claim 37: as noted above in claim 36, *Erhardt et al.* in

combination with *Utsunomiya et al.* further teaches that the method includes

scheduling special maintenance for spin tracks (see *Utsunomiya et al.*, Fig. 11).

With regard to claims 38 and 41: as noted above in claims 36 and 40, *Erhardt et*

al. in combination with *Utsunomiya et al.* further teaches that the method includes

feedback control information for apparatus or spin tracks (see *Utsunomiya et al.*, Fig.

11 and *Erhardt et al.*, Fig. 2).

With regard to claim 39: as noted above in claim 36, *Erhardt et al.* in

combination with *Utsunomiya et al.* further teaches that the method includes:

> ➢ Storing diagnostic information (see *Erhardt et al.*, Fig. 2, member 240);

> ➢ Storing the analysis data (see *Erhardt et al.*, Fig. 2, member 292); and

> ➢ Storing the maintenance schedule data (see the discussion in claim 36

> above and *Utsunomiya et al.*, Fig. 11, member 502, file or data)

Conclusion

3.   The prior art made of record and not relied upon is considered pertinent to

applicant disclosure.

> *Squires et al.* (U.S. Patent 6,279,108) teaches programmable micro-
>
> controller architecture for disk drive system.

> *Squires et al.* (U.S. Patent 4,979,055) teaches disk drive system
>
> controller architecture utilizing embedded, real-time diagnostic monitor.

> *Pierce* (IEEE Article, 'Golden Nuggets of AMHS Modeling and Design
>
> for Semiconductor Wafer Fabrication') teaches a principle for modeling
>
> and designing automated material handing system for semiconductor
>
> wafer fabrication.

> *SANDIA National Laboratories* (BMP, Best Manufacturing Practices,
>
> College Park, Maryland) teaches a survey conducted for best
>
> manufacturing practice in multi-dimensional user oriented synthetic
>
> environment.

> *Mazur et al.* (U.S. Patent 6,052,653) teaches a system for automatic
>
> spreading resistance profiling of wafer specimens.

> *Wolfe* (U.S. Patent 6,332,110) teaches method for monitoring advanced
>
> separation and/or ion exchange processes.

4.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Elias Desta whose telephone number is (571)-

272-2214. The examiner can normally be reached on M-Thu (8:00-6:30).

If attempts to reach the examiner by telephone are unsuccessful, the

examiner's supervisor, Marc S. Hoff can be reached on (571)-272-2216. The fax

phone numbers for the organization where this application or proceeding is assigned

are (703)-308-5841 for regular communications and (703)-308-5841 for After Final

communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703)-

308-1782.

                                        Elias Desta
                                        Examiner
                                        Art Unit 2857

-ed

February 4, 2004

                                        MARC S. HOFF
                                        SUPERVISORY PATENT EXAMINER
                                        TECHNOLOGY CENTER 2800